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09/936,168	02/06/2002	William Levy	20513/0572	9567

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EXAMINER	
LEUNG, JENNIFER A	

ART UNIT	PAPER NUMBER
1764	

DATE MAILED: 05/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/936,168	LEVY ET AL.	
	Examiner	Art Unit	
	Jennifer A. Leung	1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 February 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *09-10-2001*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claims 1-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1, it is unclear as to where the body of the claim begins. Also, a "plate-type catalytic reactor" (line 1) is considered vague and indefinite, because the claim includes elements not actually disclosed (those encompassed by "plate-type"), thereby rendering the scope of the claims unascertainable. See MPEP § 2173.05(d). See also the phrase, "of the type" in line 4. Also, it is unclear as to the relationship between the "means for respectively admitting and removing the reaction fluid and the heat-transfer fluid" recited in lines 19-21, and the "means for admitting and removing the reaction and heat-transfer fluids" set forth in lines 6-8.

Regarding claim 7, it is unclear as to the relationship between "the means for admitting the reaction fluid" recited in lines 1-2, and the "means for admitting and removing the reaction and heat-transfer fluids" set forth in claim 1, lines 6-8, or the "means for respectively admitting and removing the reaction fluid and the heat transfer fluid" set forth in claim 1, lines 19-21. Also, "the central well" (line 3) and "the first end" (line 4) lack proper positive antecedent basis.

Regarding claim 8, it is unclear as to the relationship between "the means for removing the reaction fluid" in lines 1-2, and the "means for admitting and removing the reaction and heat-transfer fluids" set forth in claim 1, lines 6-8, or the "means for respectively admitting and

removing the reaction fluid and the heat transfer fluid" set forth in claim 1, lines 19-21. Also, "the annular space" (line 3) and "the second end" (line 3) lack proper positive antecedent basis.

Regarding claim 9, it is unclear as to the relationship between "the means for admitting the heat-transfer fluid" in lines 1-2, and the "means for admitting and removing the reaction and heat-transfer fluids" set forth in claim 1, lines 6-8, or the "means for respectively admitting and removing the reaction fluid and the heat transfer fluid" set forth in claim 1, lines 19-21. Also, "the central well" (line 4) and "the first ends" (lines 4-5) lack proper positive antecedent basis.

Regarding claim 10, it is unclear as to the relationship between "the means for removing the heat-transfer fluid" recited in lines 1-2, and the "means for admitting and removing the reaction and heat-transfer fluids" set forth in claim 1, lines 6-8, or the "means for respectively admitting and removing the reaction fluid and the heat transfer fluid" set forth in claim 1, lines 19-21. Also, "the annular space" (line 4) and "the second ends" (lines 4-5) lack proper positive antecedent basis.

Regarding claim 11, "the internal manifolds and the external manifolds" lack proper positive antecedent basis. Furthermore, it is unclear as to the structural limitation applicant is attempting to recite by the arrangement in a "star configuration" and where it is shown in the drawings.

Regarding claim 12, "the first ends of the/said channels" and "the internal manifolds" lack proper positive antecedent basis. Furthermore, "blanked off, for example by a plate" in line 4 is considered vague and indefinite, because it is unclear whether the limitations following the phrase "for example" are part of the claimed invention. See MPEP § 2173.05(d). Furthermore, it is unclear as to the definition of the phrase, "blanked off", and the structural limitation

intended by said phrase.

Regarding claim 13, "the second ends of the/said channels" and "the external manifolds" lack proper positive antecedent basis. Furthermore, "blanked off, for example by a plate" in line 4 is considered vague and indefinite, because it is unclear whether the limitations following the phrase "for example" are part of the claimed invention. See MPEP § 2173.05(d). Furthermore, it is unclear as to the definition of the phrase, "blanked off", and the structural limitation intended by said phrase.

Regarding claim 14, "the first ends of the/said channels" and "the internal manifolds" lack proper positive antecedent basis. Furthermore, the "blanked off, for example by a plate" in line 3 is considered vague and indefinite, because it is unclear whether the limitations following the phrase "for example" are part of the claimed invention. See MPEP § 2173.05(d). Also, it is unclear as to the definition of the phrase, "blanked off", and the structural limitation intended by said phrase.

Regarding claim 15, "the second ends of the/said channels" and "the external manifolds" lack proper positive antecedent basis. Furthermore, the "blanked off, for example by a plate" in line 3 is considered vague and indefinite, because it is unclear whether the limitations following the phrase "for example" are part of the claimed invention. See MPEP § 2173.05(d). Also, it is unclear as to the definition of the phrase, "blanked off", and the structural limitation intended by said phrase.

Regarding claim 16, it is unclear as to the relationship between "the means for loading the catalyst" in lines 1-2, and the "means for loading and unloading the catalyst" set forth in claim 2. Furthermore, "the/said open first ends" (lines 3-4 and 6-7), "the/said central well" (lines

4-5) and "the inlet nozzle" (line 6) lack proper positive antecedent basis.

Regarding claim 18, it is unclear as to the relationship between "the means for unloading the catalyst" in lines 1-2, and the "means for loading and unloading the catalyst" set forth in claim 2. Furthermore, "the/said open second ends" (lines 3-4 and 7), "the annular space" (line 5), and "the outlet nozzle" (line 7) lack proper positive antecedent basis.

Regarding claim 20, it is unclear as to the definition of the phrase, "blanked off", and the structural limitation intended by said phrase.

Regarding claim 21, it is unclear as to the definition of the phrase, "blanked off", and the structural limitation intended by said phrase. Furthermore, "the internal manifolds" lacks proper positive antecedent basis, as only a singular "internal manifold" is set forth in claim 9.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3, 5-10, 16 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Evans (US 2,488,493).

Regarding claims 1, 3 and 5, as best understood, Evans (FIG. 2, 3; column 5, line 48 to column 8, line 22) discloses an apparatus comprising a vertical and elongated sealed chamber of circular shape (i.e., substantially vertical vessel **45** of circular cross-section); a bundle of smooth, frustoconical shaped plates (i.e., hollow truncated conical baffles **49** and inverted angle shaped baffles **50**) arranged inside the sealed chamber **45**, superposed on one another and defining

between one another a first series of channels containing catalyst (i.e., solid material from conduit **60**, communicating with annular shaped vertical catalyst inlet passage **53** and the sloping passage on the upper surface of baffles **50**), forming a first circuit, and a second series of channels (i.e., defined on the upper surface of baffles **49**, comprising gas space **55**), alternating with the first series of channels and forming a second circuit; and means for admitting and removing fluids, in communication with the first and second circuit (i.e., via inlet conduit **66**, vertical conduit **62**, pipes/tubes **56**, and outlet conduit **57**, inlet pipes **68**, pipe **71**).

Regarding claim 2, as best understood, Evans (FIG. 2, 3; column 5, line 48 to column 8, line 22) discloses means for loading an unloading catalyst into the channels (i.e., loading via conduit **60** and unloading via drain conduit **69**).

Regarding claim 6, as best understood, Evans (FIG. 2, 3) discloses a central well (i.e., common central drain space **61**, containing vertical conduit **62**) in which a first end of the channels emerge, and an annular space (i.e., annular passage **53**) in which a second end of the channels emerge.

Regarding claims 7, as best understood, Evans (FIG. 2, 3) discloses means for admitting fluid comprising an inlet nozzle (i.e., via inlet conduit **66**; also gas inlet pipes **68**) passing through the sealed chamber **45** and connected to the lower end of the central well.

Regarding claim 8, as best understood, Evans (FIG. 2, 3) discloses means for removing fluid comprising an outlet nozzle (i.e., pipe/tubes **56**, outlet conduit **57**) emerging in the sealed chamber **45** at the annular space **53**.

Regarding claim 9, as best understood, Evans (FIG. 2, 3) discloses means for admitting fluid comprising a main nozzle (i.e., via inlet conduit **66**) passing through the sealed chamber **45**

and a vertical internal manifold spanning the entire length of the central well **61** (i.e., vertical conduit **62**, with orifices **65** spaced along the vertical conduit).

Regarding claim 10, as best understood, Evans (FIG. 2, 3) discloses means for removing fluid comprising several ducts (i.e., pipes **56**, **57**; column 6, lines 20-29) passing through the sealed chamber **45** and connected to a vertical external manifold spanning the entire height of the bundle of plates at the annular space **53**.

Regarding claim 16, as best understood, Evans (FIG. 2, 3) discloses means for loading the catalyst formed by an inlet duct (i.e., conduit **60**) passing through the upper part of the sealed chamber **45** and a tubular sleeve (i.e., vertical conduit **62**) arranged in the central well **61** and spanning the entire height of the central well, said tubular sleeve allowing fluid to pass from the inlet nozzle **66** as far as the open ends of the channels.

Regarding claim 18, as best understood, Evans (FIG. 2, 3) discloses means for unloading the catalyst formed by an outlet duct (i.e., drain conduit **69**) emerging at the lower end of the sealed chamber **45**, and connected to a tubular sleeve defined by the annular space **53** and spanning from the upper edge of the bundle of plates **49,50** and extending to the lower part of the sealed chamber.

Instant claims 1-3, 5-10, 16 and 18, as best understood, structurally read on the apparatus of Evans.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Evans (US 2,488,493) in view of Davidson (US 4,340,501).

Evans discloses the passages between the plates **49**, **50** being maintained by a plurality of brace rods (column 5, lines 66-74). Evans, however, is silent as to the plates having corrugations. Davidson (column 2, lines 35-52) teaches the provision of corrugations to plates of a plate stack in order to keep the plates at a distance apart to define passages therebetween. It would have been obvious for one of ordinary skill in the art at the time the invention was made to substitute plates with corrugations for the plates in the apparatus of Evans, on the basis of suitability for the intended use thereof, because corrugated plates would comprise another known means for maintaining the passages between the plates, and the substitution of known equivalent structures involves only ordinary skill in the art. *In re Fout* 213 USPQ 532 (CCPA 1982); *In re Susi* 169 USPQ 423 (CCPA 1971); *In re Siebentritt* 152 USPQ 618 (CCPA 1967); *In re Ruff* 118 USPQ 343 (CCPA 1958).

4. Claims 11, 17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Evans (US 2,488,493).

Regarding claim 11, as best understood, Evans (see FIG. 2) is silent as to the manifolds being arranged in a star-configuration. In any event, it would have been obvious for one of ordinary skill in the art at the time the invention was made to configure a star configuration for the manifolds in the apparatus of Evans, on the basis of suitability for the intended use thereof, because the rearrangement of parts merely involves routine skill in the art, and the duplication of parts is obvious (e.g., to define six manifolds, as suggested in applicant's specification, page 23, lines 14-18).

Regarding claims 17 and 19, Evans discloses the tubular sleeve (i.e., vertical conduit **62**; FIG. 2) comprises a conduit having small orifices **65**, of a size smaller than the particle size of the solid material to be used, spaced along the length of the conduit to allow the passage of fluid from conduit **66** (column 6, lines 39-49). Evans, however, is silent as to whether the tubular sleeve **62** may be formed of grating. In any event, it would have been obvious for one of ordinary skill in the art at the time the invention was made to substitute a tubular sleeve formed of grating for the tubular sleeve **62** in the apparatus of Evans, on the basis of suitability for the intended use thereof, because the Examiner takes Official Notice that the use of grating to define small orifices for allowing the passage of fluid while preventing the passage of solid material is well known in the art, and the substitution of known equivalent structures involves only ordinary skill in the art. *In re Fout* 213 USPQ 532 (CCPA 1982); *In re Susi* 169 USPQ 423 (CCPA 1971); *In re Siebentritt* 152 USPQ 618 (CCPA 1967); *In re Ruff* 118 USPQ 343 (CCPA 1958).

5. Claims 12-15, 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Evans (US 2,488,493) in view of Barr (US 2,384,874).

As best understood, Evans (FIG. 2, 3) is silent as to the ends of the channels being

blanked off. Barr (FIG. 1) teaches an apparatus comprising a plurality of channels (i.e., containing catalyst beds **6-10**) defined between adjacent conical frustrum separators **11**, wherein the channels are blanked off. In particular, Barr teaches that, "Control of the flow of gases through individual beds is preferably obtained by providing movable cylindrical sleeves which partially block the circumferential inlets and outlets to the respective catalyst zones." (page 2, column 2, lines 3-19). It would have been obvious for one of ordinary skill in the art at the time the invention was made to blank off the ends of the channels in the apparatus of Evans, on the basis of suitability for the intended use thereof, because blanking off the ends of the channels would allow the flow of gases through the channels to be controlled, as taught by Barr.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A. Leung whose telephone number is (571) 272-1449. The examiner can normally be reached on 8:30 am - 5:30 pm M-F, every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jennifer A. Leung
May 20, 2005

Hien Tran

HIEN TRAN
PRIMARY EXAMINER